**REMARKS**

**Status of the Claims**

In the Office Action mailed October 30, 2003, claims 1-41 were noted as pending in the application. Claims 22. 23 and 25-27 are allowed. Claims 1-21, 24, 28, 29 and 33-38 stand rejected. Claims 30-32 and 39-41 are objected to.

**A. Objection of Claims 19 and 37 and Rejection of Claim 24 under 35 U.S.C. § 112.**

On page 2, item 1 of the Office Action, Examiner objected to claims 18 and 37. By this Amendment, Applicant has adopted Examiner's recommendations for grammatical clarification.

On page 2, item 3 of the office action, Examiner rejected claim 24 as having insufficient antecedent basis. The claim is amended above according to Examiner's recommendation. Accordingly, withdrawal of the rejection is respectfully requested.

**B. Rejection of Claims 1-6 under 35 U.S.C. § 102(b).**

On page 3 item 5 of the Office Action, claims 1-6 were rejected under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent Number 5,768,269 to Rakib, *et. al.* ("Rakib").

The reasons that the claims patentably distinguish over the reference are addressed below.

**C. Rejection of Claims 7-9, 13, 15, 17, 28, 29 and 33-38 under 35 U.S.C. § 102(e).**

On page 4 item 6 of the Office Action, claims 7-9, 13, 15, 17, 28, 29 and 33-38 were rejected under 35 U.S.C. § 102(e) as being anticipated by U.S. Patent Number 6,279,158 to Geile, *et. al.* ("Geile"). The reasons that the claims patentably distinguish over the reference are addressed below.

**D. Rejection of claims 10-12, 14, 16 and 18-21 under 35 U.S.C. § 103.**

On page 7, item 8 of the Office Action, claims 10-12, 14, 16 and 18-21 were rejected under 35 U.S.C. § 103(a) as being obvious over Geile in view of Rakib. The reasons that the claims patentably distinguish over the references are addressed below.

**E. Summary of Cited References**

Before addressing the Examiner's rejections, a brief summary of the cited references is provided.

**Rakib**

Rakib relates to synchronizing subscriber remote units in a SCDMA communication network. Through the use of orthogonal codes, frame data is encoded to lessen susceptibility to noise. Guard bands, or 'gaps' are included in each frame to include alignment barker code; no other data is supposed to be transmitted during the gaps. Col. 12, lines 22-24. A central unit send a barker code to the various subscriber remote units in every frame. Col. 13, lines 25-35.

When a remote unit "properly hits the gap" it is considered to be aligned and the central unit sends a message to the remote unit informing it of as much. However, if a

remote unit does not receive acknowledgement from the central unit that it 'hit the gap', it starts incrementing its delay vector in a trial and error process. Col. 14, lines 50-57. The phrase 'hitting the gap' is known in the art as being associated with a remote unit's authentication code being properly contained in the guard band, or gap.

**Geile**

Geile relates to a telecommunications system that uses hybrid fiber coax to connect multiple subscribers in a communication network. Col. 14, lines 5-27. If communication is lost between a large number of remote transmitters are a central unit, initialization and activation, also referred to as acquisition of a channel and synchronization, of the non-communication transmitters my be carried out in a serial fashion and the acquisition stage of the transmitters may be carried out in a parallel fashion. Col. 63, line 18 - col. 65, line 8.

**F. Claims 1-6 are not anticipated by Rakib.**

Claim 1 claims a method for synchronizing a plurality of transmitters comprising placing each transmitter into a silent mode; ranging selected transmitters; and removing each transmitter from silent mode and resuming normal operation. Rakib sends a barker code to all of the remote transmitters, which in turn respond with authentication codes in their guard bands. If the gap is not hit by a particular transmitter, that transmitter adjusts its delay until the central unit sends acknowledgement that the gap was hit.

Rakib does not teach placing each transmitter into a silent mode and then ranging selected transmitters. This is referred to as wide-mode marshalling and overcomes the problem that occurs when a propagation delay is so great as to cause the ping signal response to arrive back at the central modem in the data portion of a frame, the data is corrupted and the ping return cannot be deciphered. By wide-mode marshalling, all remote units are silenced so that even if the ping return falls into the data potion of the header, the central modem can detect this and decipher the ping return, thereby preventing interference *vis-à-vis* data of other remote units. Page 15, lines 2-5.

Moreover, the sending of authentication codes in the guard band in Rakib is not the same as the ranging process of the claims. The present application describes sending a ping signal to a particular CPE that may not be synchronized, as determined by the central controller. Page 12, lines 3-6. In Rakib, if the authentication code is not sent correctly in the guard band, the authentication code will not be decipherable and the central unit will not send confirmation that synchronization has occurred. Thus, the synchronization process includes a trial-and-error method for synchronizing a particular remote unit. Rather than measuring a time delay, Rakib merely determines whether the authentication code is transmitted in the guard band. Col. 20, lines 25-33.

In contrast, the teachings of the present application teach that the signal sent in response to the ping signal is sent in the frame header. Depending on how far away the remote unit is from the central unit, the placement in the header of the return signal will be different than the location within the header that the central unit expects it to be if the remote unit were synchronized correctly. When the placement differs from the expected location, the central unit sends a message instructing the remote transmitting unit to adjust the timing of further transmissions based on the measured delay amount. This differs from the trial and error method taught by Rakib.

Accordingly, because the Rakib does not teach wide-mode marshalling where each transmitter is placed into a silent mode before ranging particular transmitters, claim 1 is not anticipated by Rakib. Furthermore, since claims 2-6 depend from claim 1, they too are not anticipated and withdrawal of the rejection is respectfully requested.

Moreover, Rakib does not teach measuring the propagation delay of each transmitter being registered and adjusting said particular transmitter by the measured propagation delay as claimed in claim 2 nor does Rakib teach adjusting the particular transmitter to transmit at $t_1 - t_0$ where $t_0$ is the requested transmit time and $t_1$ is the actual time the transmission is received. At col. 20, lines 34-49, Rakib teaches determining, at the remote unit, whether a delay vector has been changed by the central unit. This facilitates the remote unit adjusting its timing, but this is not the measuring of the time delay as claimed in either claim 2 or 3.

**G. Claims 7-9, 13, 15, 17, 28, 29 and 33-38 are not anticipated by Geile.**

Independent claims 7 and 13 include the elements of detecting when one of a plurality of transmitters is not transmitting at an appropriate time; disabling particular transmitters of the plurality; selecting one of the detected transmitters as a selected transmitter; attempting a range operation with the selected transmitter; and enabling each of the particular transmitters if the range operation of the selected transmitter fails. In col. 63, lines 24-26, referring to synchronization as discussed at col. 61, line 45 – col. 63 line 17 and shown in FIG. 19, Geile teaches serial synchronization of all of a plurality of remote units when the entire plurality has been is able due to a severed cable. Geile states that only one remote unit, or ISU, would be initialized at a time. After initialization during period $T_{SCAN}$ of a single ISU occurs, that same ISU synchronizes during period $T_{EQUAL}$ that corresponds to that particular ISU. This is shown in FIG. 19 where $T_{SCAN}$ and $T_{EQUAL}$ for a given ISU0 occurs and then another $T_{SCAN}$ and $T_{EQUAL}$ for the next ISU1 occurs, and then the next ISU2 and so on in a serial fashion. This is described as one method of initializing that can be improved upon by using a burst method as shown in FIG. 20 and the corresponding text at col. 63, line 57 - col. 65, line 8, by having all ISUs scan for a frequency during $T_{SCAN}$.

However, although ISUs are initialized/synchronized one-at-a-time as shown in FIG. 19, this is not the same as in claim 7 of the present application where certain transmitters are disabled. Then, only one of the selected transmitters is selected for an attempted range operation. This contrasts with Geile, where, although only one at a time is synchronized, all of them are selected for synchronization, but each must wait its turn, which will inevitable come after the preceding ISU has completed its initialization and synchronization, as discussed above in connection with FIG. 19 of Geile. Thus, the claim elements of 'selecting one of the detected transmitters as a selected transmitter' and 'attempting a range operation on the selected transmitter . . .' are not found in the reference because Geile teaches attempting to initialize and synchronize all of the ISUs that may have had a cable severed. Therefore, the claim patentably distinguishes over the reference.

Claim 13 contains similar elements to those just discussed regarding claim 7. For example, ISUs are selected one-at-a-time for ranging. In addition, Geile does not teach wide-mode marshalling, disabling wide-mode marshalling if a range operation fails. Therefore, claim 13 patentably distinguishes over the reference. Accordingly,

withdrawal of the rejection with respect to independent claims 7 and 13, and dependent claims 8-9 and 15 and 17, which depend therefrom respectively, is respectfully requested.

Further, with respect to the claim element referred to in the office action "(e) if the range operation fails, disable wide-mode marshaling by enabling each of the particular transmitters to resume transmitting," Geile teaches that if synchronization is not obtained using a particular channel, synchronization with another channel is attempted. This process continues until all channels have been tried, upon which the process resumes until synchronization is obtained. Col. 65, lines 33-40.

This contrasts with the claim element in that if synchronization is not obtained for the first selected transmitter, wide-mode marshaling is disabled. Thus, if the selected remote unit is not synchronized, it is assumed that there is a physical problem in the network, such as a line break, and further attempts to synchronize would be futile. Accordingly, wide-mode marshalling is disable so that remote units that are synchronized, or are capable of being synchronized, are not prevented from transmitting and providing service to the corresponding customer. Since Geile does not disclose this, but actually teaches away - attempts to synchronize continue after an unsuccessful attempt - the claim element, and thus the entire claim, is not anticipated by Geile. As requested above, withdrawal of the rejection is respectfully requested.

With respect to claim 9, Geile does not teach that all remote units of a particular subset of transmitters are disabled by the central unit before ranging. Claim 9 claims the ability to conditionally enable these units of the subset upon successful ranging, while keeping them disabled if successful ranging is not achieved. Geile teaches all units being automatically enabled as they each successfully range serially. Furthermore, the remote units that are serially ranging are not placed in a disabled state by the central unit. In the present application, the remote units are selectively placed in an inactive state to improve the likelihood of successful ranging. Withdrawal of the rejection is respectfully requested.

Regarding claims 28, 33 and 37, Geile does not disclose a multiple-threshold approach to categorizing number of failed remote units. Giele discusses attempting to tune to a different carrier frequency if tuning to a given channel frequency is not successfully accomplished. This tuning is performed during the $T_{SCAN}$ periods shown in FIGS. 19 and 20. Synchronization occurs after the scan period. Thus, scanning in Geile is not the same as the synchronization in the present application. Furthermore, Geile does not designate a number of remote units that fail to synchronize as a failed set of transmitters/remote units, compare the number of designated remote units to a predetermined threshold and then control a recovery process based on the outcome of the comparison. Accordingly, the claims patentably distinguish over the reference and withdrawal of the rejection is respectfully requested.

Regarding claims 29 and 38, as discussed above, Geile does not teach performing multiple recovery processes, with the particular process being performed based on the number of remote units/transmitters that fail to synchronize. Furthermore, Geile does not disclose that the central controller causes the remote transmitter to cease transmitting during a wide-mode marshalling process. The portion of the reference cited, col. 63, lines 24-26, refers to a situation where many remote units are to be resynchronized following a fault in the network, such as a severed fiber. Obviously, an outage of remote transmitters would be caused by an unforeseeable occurrence (the severing of the line),

whereas the disabling of certain remote transmitters during wide-mode marshalling as claimed in the claims is purposefully caused by the central controller so that synchronization by a selected remote transmitter is facilitated. Since all the elements in the rejected claims are not found in the reference, withdrawal of the rejection is respectfully requested.

Regarding claims 34-36, similar analysis applies. The controller restricts transmitters from transmitting, rather than an uncontrollable even such as a line break preventing transmitters from transmitting. Accordingly, withdrawal of the rejection is respectfully requested.

With respect to the objection to claims 30-32 and 39-41, which depend from claims 28 and 37, either directly or indirectly respectively, the independent claims patentably distinguish as discussed above. Accordingly, withdrawal of the objection and allowance of the claims is respectfully requested.

**H. Claims 10-12, 14, 16 and 18-21 are not obvious over cited references**

Applicant respectfully submits that the subject matter of the claims patentably distinguish over the cited references. Under MPEP § 2142, for an examiner to establish a *prima facie* case of obviousness, "three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, and not based on Applicant's disclosure." If any of these three criteria are not met, the Examiner has not met the burden of establishing a *prima facie* case of obviousness, and the rejection should be withdrawn.

Furthermore, each dependent claim includes all of the limitations of the independent claim from which it depends. If an independent claim is non-obvious under 35 U.S.C. § 103, then any claim depending therefrom is non-obvious. MPEP § 2143.03, citing In re Fine, 837 F.2d 1071 (Fed. Cir. 1988). Applicant respectfully submits that the burden of establishing a *prima facie* case of obviousness has not been met.

With respect to claims 10-12, 14, 16 and 18-21, Rakib does not teach measuring the propagation delay. Since neither Geile nor Rakib teach measuring propagation delay and adjusting transmitter, the claims are not obvious over the references. Moreover, neither reference teaches disabling particular transmitters and attempting to range a selected one of said particular transmitters as in claims 7 and 13, the independent claims from which the rejected claims depend. Furthermore, neither teaches enabling the particular transmitters if the ranging of the selected transmitter fails. Thus, the dependent claims are not obvious over the references and withdrawal of the rejection is respectfully requested.

Regarding claims 2 and 5, since neither of the references, either alone or in combination, teach all of the elements of the claims, the claims are not obvious. As discussed above, neither teaches placing a plurality into silent mode and then ranging selected transmitters of the plurality, as claimed in claim 1, the independent claim from which claims 2 and 5 depend. Accordingly, since claim 1 patentably distinguishes over

the references, alone and in combination, claims 2 and 5 patentably distinguish as well. Withdrawal of the rejection is respectfully requested.

Regarding claim 11, Geile does not teach selectively operating on particular transmitters from among a plurality that have been detected as not being synchronized, as claimed in claim 7, the independent claim from which claim 11 depends. Geile refers to a plurality of transmitters that have not been transmitting because of a line break. When attempts are made to resynchronize the transmitters, they can be tuned and synchronized in a serial fashion as shown in FIG. 19 or a burst fashion as shown in FIG. 20. Neither fashion selects particular transmitters from among a plurality that are out-of-sync for synchronizing. Thus, the reference discloses using more time in attempting to synchronize all transmitter than only the selected ones as in the claim. Accordingly, claim 11 patentably distinguishes over the references and withdrawal of the rejection is respectfully requested.

Claims 12 and 16 depend from independent claims that distinguish over the references as discussed above. Thus, they too patentably distinguish and withdrawal of the rejection is respectfully requested.

Regarding claims 18-21, the independent claim from which they depend, claim 13, patentably distinguishes, as discussed above. Accordingly, withdrawal of the rejection is respectfully requested.

**SUMMARY**

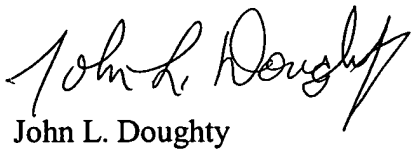
For all the reasons advanced above, Applicant respectfully submits that the application is in condition for allowance and that action is earnestly solicited.

If the Examiner believes that there are any issues that can be resolved by a telephone conference, or that there are any informalities that can be corrected by an Examiner's amendment please contact the undersigned at the mailing address, telephone, facsimile number, or e-mail address indicated below.

Arris International, Inc.
11450 Technology Circle
Duluth, Georgia 30097
(678) 473-8697
(678) 473-8095 - fax
john.doughty@arrisi.com

Respectfully submitted,

Arris International, Inc.



John L. Doughty
Reg. No. 47,533